

more than 360,000 titles among 3,750,000, filling, when printed alone, 4'32, or in round numbers, 5 volumes of the 45, while he must undergo the trouble of using all the 45, or of this work, $\frac{4}{5}$, i.e., 89 per cent. is useless and annoying for him, and $\frac{1}{5}$, or 11 per cent. only is useful; the space needed for the catalogue is about 4 metres, 44 centimetres of which are useful, and 3m. 56cm. disturbing; and, last but not least, he pays 36*l.* instead of 4*l.*

But with all this superfluous work, still no complete catalogue is acquired, but a very deficient one; for of periodical journal articles there are about 3,000,000, separate works about 6,000,000 in a rough estimation, or together, 9,000,000, i.e. (no main titles or cross-references being herein comprised), about six times the number possessed by the British Museum library.

Supposing, in the same proportion as above, these 9 millions of publications to be accompanied by 12 millions of main titles, &c.; supposing, then, these 21 millions of entries to be composed of 4.2 millions of old and 16.8 millions of new ones, the publication of these could be effected as follows:—

The titles of old books, being used much seldomer than new ones, and belonging mostly to fifteen to twenty different branches, could form a special catalogue of fifty volumes, whose price would be 40*l.*; each great city might content itself with a single copy accessible to all men of science.

The remaining 16.8 millions of modern publication titles, divided into fifty branches, would give 360,000 entries for each of them, or five volumes for 4*l.*, so that even private libraries would be enabled to possess a complete catalogue of all modern publications of a single branch.

As to the construction of such catalogues, the following would perhaps be a practical method:—

At first a committee for the defining of branches and the limit between old and modern publications should be appointed, to which all greater libraries should send copies of their catalogue classifications; by means of these copies exact rules for the extent of branches and the method of working could be drawn up in six months.

This work done, a numerous catalogue committee should be formed, to which all greater library catalogues should be sent in copies; where such copies are wanting the library should be examined by members of the committee, using the thitherto ready part of the catalogues.

The periodical publications before 1800 and after 1873, should be registered in the same manner as those in the "Royal Society Catalogue," and then subdivided into single branches by the committee. In this way complete catalogues for great groups could be formed, care being taken not to restrict the limits of these too much in order to hasten the publication of the work. This publication would be the first and hardest step to a manageable index of literature.

During the next ten years after its publication the completion could be carried out by putting beside each title a short classification of its contents, not an extract—contained in a single word or phrase, like "electrostat." or "relat. age mortal.," for "electrostatics" or "relation between age and mortality," or a few single words when different matters are treated; these classifications, made simultaneously by different persons and compared, together with all corrections, could be printed about twelve years after the first catalogue, and form the final work, which at short intervals of five or ten years should be completed by appendices.

ARISTIDES BREZINA

Custos of the Imperial Mineralogical
Museum, Vienna

Distribution of *Mus rattus*

I AM able to-day to complete my note in NATURE, vol. xx. p. 29, as to the exact habitat of the black rat in Thuringia. Prof. Liebe, of Gera, kindly wrote to me that it occurs in East Thuringia and the Voigtland in single elevated side-valleys of the rivers Weisse Elster and Roda, as well as in single lurking-places of the Frankenwald. Here it occurs in isolated forest-houses, in the valleys, in whole partly large villages, for instance, St. Gangloff. In this place for a long time past *Mus rattus* and *M. decumanus* have occurred together among each other, not one above the other, on different floors, as might be supposed, though *rattus* now and then rather prefers the upper floors, and the latter does not appear to be decreasing in number. In those villages about three specimens of *rattus* are always killed for one

specimen of *decumanus*, the latter, apparently, being less numerous.

A. B. MEYER

Dresden, Royal Zoological Museum, May 20

Insect Galls Buds

I WAS much interested in Mr. A. Stephen Wilson's letter upon this subject (NATURE, vol. xx. p. 55). I must, however, demur to his statement that "all insect-galls are in reality leaf-buds or fruit-buds," as too sweeping to be accurate. I can hardly include in the above category the numerous galls which make their appearance on the growing leaves of trees, such, for example, as the oak-spangles (of *Neuroterus malpighii*) or the galls of the *Spathogaster baccarum*, *Andricus curvator*, &c., several of which may be placed on the veins of a single leaf. These examples cannot assuredly be classed as pathologically developed leaf or fruit buds only so far as woody growth usually takes place through buds. In a short paper I once read at the Linnean Society, an abstract of which appeared in NATURE during the early part of the year 1875, I drew attention to the fact that the growth of galls took place coincidentally with the growth of the tissues in which they were placed; thus the development of the bud-galls of *Cynips kolleri*, *Teras terminalis*, and *Aphilothrix gemma*, is to be seen in the spring, summer, and early autumn, but not in winter time when the tree growth is arrested. My observations at that time led me to suppose that the currant galls of the oak and others of the same class only grow during the growth of the leaf to which they were attached.

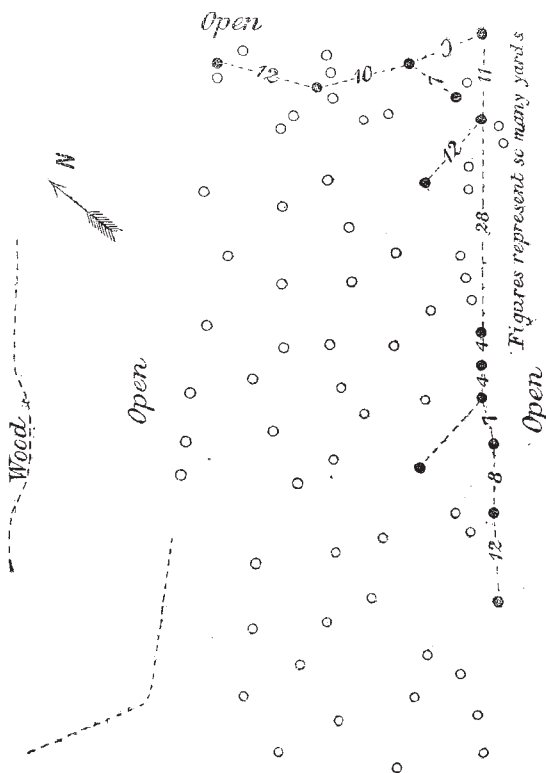
I trust Mr. Wilson will give your readers the benefit of his further researches on this subject.

W. AINSLIE HOLLIS

Brighton, May 16

Effects of Lightning

A REMARKABLE electric discharge occurred on Sir Robert Gordon's estate of Letterfourie in a small wood about four miles to the south-east of this place on November 16 last about 12.45 A.M. The accompanying sketch (scale $\frac{1}{4}$ " = one yard), where



the trees (common fir and larch) struck are represented by black dots, will give you an idea. The soil and trees were slightly covered with snow, which had been falling at intervals since sunset on the 15th. On that night I observed two or three flashes of lightning accompanied by thunder, and a few days afterwards

I was told by a local medical gentleman, who had visited the spot, that some eleven or twelve trees had been struck among the hills under peculiar circumstances. The snow was lying so deep at the time that the place was well nigh inaccessible, and owing to want of leisure and the continued severe weather, I had no opportunity of visiting the wood in question until a few days ago. I then ascertained from a farmer living 150 yards south-east of the spot, that the trees must have been struck simultaneously.

Between 9 and 10 P.M. on the 15th a flash of lightning, followed by loud thunder, was seen by him in the north and clear of the wood altogether; besides, the interval between flash and peal showed it to be at a comparatively great distance. The man, being an invalid, never slept, when about 12.45 A.M. on the 16th a blinding light immediately followed by a tremendous thunder-clap made him think his own house was struck. The next and last flash and peal occurred a quarter of an hour afterwards at a considerable distance away to the west.

The effect of the lightning on the trees was observed from the window on the following morning, and as the spot was daily visited by the inmates of the house for the purpose of drying clothes, there could be no doubt but the damage had been done during the previous night. All the fourteen trees, varying from six to nine inches in diameter, and not visibly higher than the immediately adjoining ones have lost the bark over a width of one half to one inch, and the wood is slightly split.

Buckie, Banff, N.B., May 12

G. W. CAMPHUIS

Intellect in Brutes

IN connection with recent correspondence in your columns, it has occurred to me that the following remarkable instance of reasoning in an animal might be of interest to your readers.

In 1877 I was absent from Madras for two months, and left in my quarters three cats, one of which, an English *tabby*, was a very gentle and affectionate creature. During my absence the quarters were occupied by two young gentlemen, who delighted in teasing and frightening the cats. About a week before my return, the English cat had kittens, which she carefully concealed behind book-shelves in the library. On the morning of my return I saw the cat, and petted her as usual, and then left the house for about an hour. On returning to dress I found that the kittens were located in a corner of my dressing-room, where previous broods had been deposited and nursed. On questioning the servant as to how they came there, he at once replied, "Sir, the old cat taking one, one in mouth brought them here." In other words, the mother had carried them one by one in her mouth from the library to the dressing-room, where they lay quite exposed. I do not think that I have heard of a more remarkable instance of reasoning and affectionate confidence in an animal, and I need hardly say that the latter manifestation gave me very great pleasure. The train of reasoning seems to have been as follows: "Now that my master has returned there is no risk of the kittens being injured by the two young savages in the house, so I will take them out for my protector to see and admire, and keep them in the corner in which all my former pets have been nursed in safety."

G. BIDIE

Government Central Museum, Madras, May 3

GEOGRAPHICAL NOTES

THE anniversary meeting of the Royal Geographical Society was held on Monday last, Sir Rutherford Alcock, vice-president, in the chair. From the Council report it appears that there is no diminution in the number of Fellows, notwithstanding the losses from various causes. From a financial point of view, the Society continues to prosper, its assets being set down at over 37,000*l.*, exclusive of its valuable map collection and library, both of which have received large accessions during the past year. It will be interesting to practical geographers to learn that considerable progress has been made with the revision of the classified register of maps and the preparation of an alphabetical catalogue of all the maps in the Society's collection and publications, and especially that the new catalogue is being prepared with a view to its being subsequently printed. We are also informed that a case containing a set of traveller's instruments, such as

the Society recommend, has been placed in the map-room. At the conclusion of the report the royal medals were presented to Count Schouvaloff, the Russian ambassador (for Col. Prejevalsky), and General Sir Lintorn Simmons, R.E., G.C.B. (for Capt. W. J. Gill, R.E.), after which came the presentation of the Public Schools' Prize Medals, the award of which we have already recorded, and some interesting remarks on the teaching of geography, by the Rev. G. Butler, headmaster of Liverpool College. The Hon. G. C. Brodrick announced the subject for next year's examination would be "Western Africa, from the Sahara to the Congo, and as far eastwards as Nyangwé." The Earl of Northbrook was elected president, and among the new members of council are General R. Strachey and General Sir H. L. Thuillier, late head of the great Trigonometrical Survey of India, both of whom are well known as scientific geographers. The Society being without a president, the annual address on the progress of geography was delivered by Mr. Clements R. Markham, the senior secretary. The chief items of news are that Lieut. R. C. Temple, of the 1st Gurkhas, has constructed a map of a large tract of previously unknown country between Candahar and Dehra Ghazi Khan, and has promised to furnish an account of the region, and that Mr. Whitely is about to attempt an examination of the mysterious Mount Roraima and its neighbourhood, in the interior of Guiana. In conclusion, Mr. Markham called attention to the shortcomings of the Admiralty in the surveying department, expressing a hope that they might be induced to send out a properly equipped surveying-vessel to the southern part of the east and west coasts of Africa, "which have not been sounded since the days of Capt. Owen, half a century ago."

M. SOLEILLET, who recently tried to reach Timbuctoo, has arrived in Paris, and gave, on Monday, an address before the Société d'Études Maritimes et Coloniales, in the large hall of the Société d'Encouragement. M. Soleillet is in very good health, and no trace of his illness is now visible. He speaks highly of the negro population and the Sultan of Segou, where he spent more than three months as peaceably as in any French town, without any other escort than a single servant, a sergeant of the Senegal Rifles. The Niger at Segou-Sokkhorra, more than 2,000 miles from its mouth, is about 300 yards wide. The access is very easy for traders. M. Soleillet will devote his future exploration to the determination of the best track for the trans-Saharan railway. He contrasted the good will of the negro population for the French with the hostility exhibited towards Europeans in the Sahara.

FROM *Globus* we learn that the long sojourn of the Russian troops in Bulgaria and Rumelia has been fruitful of results to geographical knowledge. The Russian staff have been active in carrying out a series of astronomical and geodetic observations, so that a fairly complete network of triangulation has been accomplished, which will enable cartographers to lay down with fair accuracy a very considerable number of places in our maps. Something like 1,000 points have been thus taken, most of them geodetically, but a considerable number astronomically. The chief results are expected to be published by 1880.

THE steamer *Nordenskjöld*, Capt. H. Sengstacke, formerly chief officer of the *Germania* on the second German Arctic expedition, sailed from Malmö, under the Russian flag, on May 12, for Behring Strait, *via* the Suez Canal. On board are Prof. Grigorieff of St. Petersburg, and Baron von Danckelman of Leipsic, to whom are intrusted the duties of zoologist and physicist respectively. The object in view, as our readers know, is to visit the mouth of the Lena, and, if necessary, render assistance to Prof. Nordenskjöld. The expedition is not